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STATE OF ALASKA

William A. Egan, Governor

ANNUAL REPORT OF PROGRESS, 1965 - 1966

FEDERAL AID IN FISH RESTORATION PROJECT F-5-R-7

SPORT FISH INVESTIGATIONS OF ALASKA

ALASKA DEPARTMENT OF FISH AND GAME
Walter Kirkness, Commissioner

E. S. Marvich, Deputy Commissioner

Alex H. McRea, Director
Sport Fish Division

Louis S. Bandirola, Coordinator

INTRODUCTION

This report of progress consists of Job Segment Reports conducted under the State of Alaska Federal Aid in Fish Restoration Project F-5-R-7, "Sport Fish Investigations of Alaska."

The project during this report period is composed of 18 separate studies. Some are specific to certain areas, species or fisheries, while others deal with a common need for information. Each job has been developed to meet the needs of various aspects of the State's recreational fishery resource. Seven jobs are designed to pursue the cataloging and inventory of the numerous State waters. These jobs, which are of a continuing nature, will eventually index the potential recreational fisheries. Four jobs are directed toward specific sport fish studies. These include specialized efforts toward the anadromous Dolly Varden of Southeastern Alaska, the silver salmon in Resurrection Bay, the king salmon stocks on the Lower Kenai Peninsula, the king salmon stocks in Upper Cook Inlet, and the Arctic grayling of the Tanana River system.

The statewide access program is developing rapidly. Our efforts in investigating existing and potential recreational sites and access has resulted in favorable action being taken on our proposals and recommendations submitted to the land management agencies at both the State and Federal levels.

The remaining jobs included a specialized creel census effort in Southeastern, an egg-take program designed to establish indigenous egg-take sources, and evaluation of the Fire Lake system.

Three special reports have been completed from past studies on the Dolly Varden study. These appear in the Department's "Research Report" series and are a direct result of the Federal Aid In Fish Restoration Program. To date, the following reports have been published: Research Report No. 3, "Some Migratory Habits of the Anadromous Dolly Varden Salvelinus malma (Walbaum) in Southeastern Alaska," 1965, Robert H. Armstrong; Research Report No. 4, "Annotated Bibliography on the Dolly Varden Char," 1965, Robert H. Armstrong; and Research Report No. 5, "Age and Growth of Anadromous Dolly Varden Char Salvelinus malma (Walbaum), in Eva Creek, Baranof Island, Southeastern Alaska," 1966, David W. Heiser.

The material contained in this progress report is often fragmentary in nature. The findings may not be conclusive and the interpretations contained herein are subject to re-evaluation as the work progresses.

RESEARCH PROJECT SEGMENT

STATE: ALASKA Name: Sport Fish Investigations of Alaska

Project No.: F-5-R-7 Title: Population Studies of Anadromous Species with Emphasis on King Salmon, Upper Cook Inlet Drainage.

Job No.: 9-B

Period Covered: March 16, 1965 to March 15, 1966.

ABSTRACT

Test net and hook and line sampling were used to obtain general information relative to distribution, timing, length frequencies, age, and sex compositions of king salmon.

The fork lengths of 437 king salmon, Oncorhynchus tshawytscha (Walbaum), caught by test nets averaged 30.5 inches, of which 29 percent were under 25 inches. Sex ratio of males to females was 2.4 to 1.

Sixty-nine king salmon caught by rod and reel averaged 23.7 inches, of which 56 percent were under 25 inches. Sex ratio of males to females was 3.3 to 1.

King salmon escapement counts were determined by test fishing, and ground and aerial surveys. A total of 4,742 king salmon was enumerated in 30 streams; 58.3 percent of these fish were counted on the Deshka River.

Five- and four-year-old fish were the most prominent age groups in the sample, accounting for 52.7 and 32.7 percent, respectively.

A total of 4,810 kings averaging 3.9 inches was marked by removal of the left pectoral fin and released into Ship Creek.

OBJECTIVES

1. To determine the distribution, abundance, time of arrival, age, growth, sex ratios and spawning areas of adult king salmon in the various streams of Upper Cook Inlet.

2. To provide data on post-spawning, incubation and emergence of king salmon smolts.

3. To determine the present sport fish catch of steelhead trout and silver salmon smolts.

4. To determine the present sport fish catch of steelhead trout and silver salmon and evaluate the expansion or trend of the angling pressure and its impact on these stocks.

5. To explore the practicability of artifically rearing king salmon smolts in the Fort Richardson and Elmendorf Air Force Base Cooling Ponds and evaluating their contribution to the stock of Ship Creek.

TECHNIQUES USED

Aerial, riverboat and ground surveys were made to observe distribution, numbers and time of arrival of adult king salmon in the Susitna River Drainage.

Lengths, sex composition and scales from king salmon were obtained by test net and hook-and-line fishing in the Deshka River. All salmon were measured in inches from tip of snout to fork of tail (fork length).

Scales were prepared by the plastic impression method, and age analysis was accomplished by Department personnel.

Creel census was undertaken during the silver salmon Oncorhynchus kisutch, (Walbaum) season to accumulate data on angling harvest.

RECOMMENDATIONS

That this study be continued with the following additions:

1. Determine the sport fish catch of king salmon and to evaluate angling pressure in the saltwater areas of Upper Cook Inlet.

2. Study the behavior and spawning efficiency of precocious male king salmon in the Deshka River.

3. That Ship Creek be used as a source for the procurement of king salmon eggs for experimental rearing and release in Ship Creek.

FINDINGS

Description of the area investigated has been presented in Volume 4, Job No. 8-B, Dingell-Johnson Project Report, State of Alaska, 1962-63.

History

Sport and commercial fishing for king salmon has been prohibited since 1964 in an attempt to rebuild the king salmon stocks in Cook Inlet.

In December of 1965, the Alaska Board of Fish and Game adopted a proposal to allow sport fishing for king salmon in the saltwater areas of Cook Inlet with a bag limit set at two king salmon daily; the streams will remain closed.

The history of the Cook Inlet king salmon fishery prior to 1965 has been presented in Volume 5, Job No. 9-B, Dingell-Johnson Project Report, State of Alaska, 1963-64.

Timing

Adult king salmon ascend the Susitna River in early May and migrations usually continue until the first week in July.

Catch records obtained from the Commercial Fisheries Division's office in Anchorage on their test fishery on the Lower Susitna River indicated the peak of the 1965 king salmon run occurred from June 2 through June 12. Approximately 97 percent of the sampled catch was taken prior to June 25, the opening date for commercial fishing in saltwater areas of Cook Inlet.

Kings were observed at the mouth of the Deshka River on May 28 with the peak number counted from June 7 through June 17. Table 1 presents sex composition and catch by days.

The peak of spawning activity occurs during mid-August for most Susitna River tributaries. In the Anchorage area streams, the majority of kings have spawned by the first of August.

TABLE 1 - King Salmon Catch by Days and Sex, Caught in the Test Net Fishery, Deshka River, 1965.

Date	Number of Fish	
	Female	Male
5/29	1	-
5/30	3	4
5/31	1	1
6/1	-	2
6/2	2	4
6/3	2	2
6/4	1	2
6/6	-	1
6/7	10	7
6/8	14	11
6/9	-	9
6/10	7	15
6/11	13	21
6/12	15	43
6/13	20	54
6/14	7	32
6/15	6	14
6/17	5	17
6/18	6	9
6/19	6	15
6/20	3	11
6/21	2	10
6/22	3	3
7/3	-	1
7/7	-	2
7/8	2	12
7/9	1	1
7/10	-	-
7/11	2	2
7/12	Not Sexed (3)	
TOTAL	132	305

Tagging

The Deshka River was chosen as a study area because it is the main producer of king salmon in the Susitna River system.

Four hundred thirty-seven salmon taken in the test net fishery and 69 caught on hook and line were measured, sexed and then tagged with a Peterson disc tag for study on the spawning grounds. From the 506 king salmon marked in the Deshka River, seven were subsequently recovered or observed upstream from the tagging site.

Two kings were taken on hook and line at the mouth of Sheep Creek, 24 river miles upstream, northeast of the tagging site, approximately two weeks after being tagged. Three tagged kings were observed in Willow Creek on July 13, but the tags were not recovered.

During a ground survey conducted from August 7 through August 9, three tagged king salmon were sighted in the East Fork, a major tributary of the Deshka. Visual observations were good with ideal water conditions, and 1,565 king salmon were observed. The low numbers of observed tagged fish indicates that the majority of the kings tagged either utilized the west side tributaries of the Deshka or moved from the tagging site, back into the Susitna River and spawned in other streams. High water conditions hindered float surveys on the west side tributaries during the peak of spawning and very few king salmon were observed.

The Commercial Fish Division tagged 362 kings at the test net site on the Lower Susitna River [1/]. The tagging crew used various color combinations of engineers tape and spaghetti tags. Two marked kings were caught in the sport fish nets at the confluence of the Susitna and Deshka River and released unharmed. The time between tagging and recapture was 11 and 17 days. The distance between the tag and recovery site is approximately 40 stream miles. Five other marked fish were found dead a considerable distance upstream on the Deshka; however, none of the fish had spawned and cause of mortality is unknown. Table 2 indicates the date kings recaptured on the Deshka River were tagged and recovered.

TABLE 2 - Tag and Recovery of King Salmon in the Susitna River Drainage, 1965.

Tagging Site	Date Tagged	Tag Number	Recovery Site	Date Recovered	Days Between Tag & Recovery	Condition of Fish at Recovery Site
Fish Cr.	6/3/65	10192	Deshka R.	6/26/65	23	Found dead
Fish Cr.	6/3/65	10169	Deshka R.*	6/20/65	17	Good-Released
Fish Cr.	6/7/65	793	Deshka R.	7/9/65	32	Found dead
Fish Cr.	6/9/65	01356	Deshka R.*	6/20/65	11	Good-Released
Fish Cr.	6/12/65	10001	Deshka R.	6/30/65	18	Found dead
Fish Cr.	6/12/65	10007	Deshka R.	6/30/65	18	Found dead
Fish Cr.	6/17/65	100041	Deshka R.	7/16/65	29	Found dead

* Test Net Site

1/ Unpublished Report

Test Fishing - Gill Net

Test net sampling was used to obtain general information relative to distribution, timing, length frequencies, age and sex composition. One set net 5-1/4-inch stretch mesh, 8 feet deep and 100 feet long was used in sampling. Most of the test fishing took place in the Deshka River at its confluence with the Susitna River. Results of measured and sexed king salmon are listed in Table 3.

TABLE 3 - Sport Fish Test Net Fishery, Deshka River, 1965.

Month	Sex	Number	Mean Length (Inches)
May	Male	5	25.1
	Female	5	39.9
June	Male	282	29.1
	Female	122	34.1
July	Male	18	26.4
	Female	5	35.0
TOTAL	Male	305	28.8
	Female	132	34.3

The fork lengths of 437 king salmon caught in the sport fish test net ranged from 17.7 to 51.0 inches. The mean length was 30.5 inches as compared to 29.6 inches in the 1964 test net fishery. Twenty-nine percent of the fish measured in 1965 were under 25 inches. The most prevalent size group was from 20.0 to 27.9 inches of which 98 percent were males (Figure 1). This size group is comparable to the dominant size group in 1964. The average length of the females was 34.4 inches in 1965 and 34.9 inches in 1964. Seventy-eight percent of the females measured in 1965 were in the 30.0- to 37.9-inch range.

Test Fishing - Rod and Reel

A conventional spin casting outfit was used in sampling king salmon in the Deshka River. Salmon ranging from 11.5 to 42.0 inches were hooked, measured, sexed and released. The average length of 69 king salmon measured was 23.7 inches as compared to 23.8 in 1963, the last year Cook Inlet was open to a sport fishery. Fifty-six percent of the salmon measured were under 25 inches. Sex ratios of males to females was 3.3 to 1 compared to 3.7 to 1 in 1963.

Test Fishing - Commercial Fish Division

The Commercial Fish Division continued a test net fishery that was initiated in 1963 on the Lower Susitna River to obtain information relative to magnitude and peak of runs of king salmon. One king and red salmon net, 8-1/2- and 5-1/4-inch stretch mesh, respectively, were set in the eddies of the Lower Susitna River and checked twice a day. Eight hundred sixty salmon

were caught at the test site with 790 of these being sexed and lengths recorded (Table 4). Twenty-four percent of the catch was under 25.0 inches, which is comparable to the 23 percent sampled in the 1964 fishery. Sex ratio of males to females was 1.03 to 1.

TABLE 4 - Commercial Fish Test Fishing Susitna River, 1965.

Month	Sex	Number	Mean Length (Inches)
May	Male	37	25.4
	Female	29	32.2
June	Male	363	27.4
	Female	359	32.8
TOTAL	Male	402	
	Female	388	

Lengths

Length frequency distribution of 437 king salmon measured in the sport fish test net fishery is listed in Table 5. The mean length for this sample was 30.5 inches, with a size range from 17.7 to 51.0 inches. Of the fish measured, 29 percent were under 25 inches. A comparison of the 1965 and 1964 test net fishery is shown in Figure 1.

TABLE 5 - Length Frequency Distribution by Sex, of King Salmon Measured at the Test Net Site, Deshka River, 1965.

Size Range (Inches)	Male	Female	Combined
10.0-11.9			
12.0-13.9			
14.0-15.9			
16.0-17.9	1		1
18.0-19.9	8		8
20.0-21.9	27		27
22.0-23.9	72		72
24.0-25.9	52		52
26.0-27.9	20	4	24
28.0-29.9	11	7	18
30.0-31.9	5	10	15
32.0-33.9	20	36	56
34.0-35.9	16	34	50
36.0-37.9	24	24	48
38.0-39.9	11	9	20
40.0-41.9	14	2	16
42.0-43.9	17	4	21
44.0-45.9	1	1	2
46.0-47.9	3		3
48.0-49.9	2	1	3
50.0-51.9	1		1
TOTAL	305	132	437

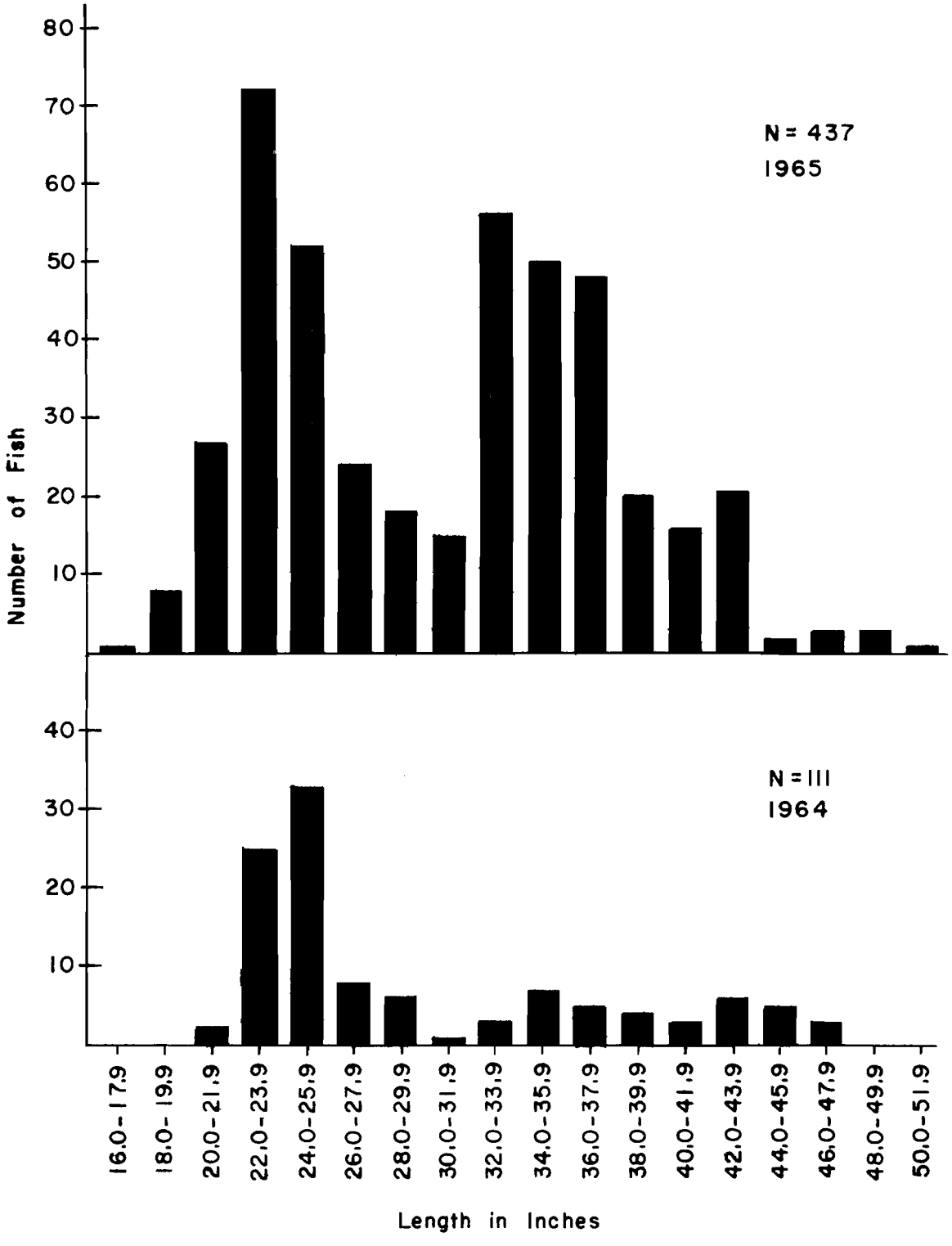

Figure 1. Length frequency distribution of king salmon measured in the test net fishery, Deshka River, 1964 - 1965.

Four hundred thirty-seven of the kings caught by test net were sexed; 70 percent were males compared to 78 percent in the 1964 test net fishery.

Length measurements and sex composition were obtained from 68 king salmon caught by rod and reel in the Deshka River (Table 6). The average size for the sample was 23.7 inches, and 77 percent were males.

TABLE 6 - Length Frequency Distribution, by Sex, of King Salmon Caught by Rod and Reel, Deshka River, 1965.

(Inches)	Male	Female	Combined
10.0-11.9	3		3
12.0-13.9	17		17
14.0-15.9	2		2
16.0-17.9	1		1
18.0-19.9	1		1
20.0-21.9	4		4
22.0-23.9	9		9
24.0-25.9	4		4
26.0-27.9	4	1	5
28.0-29.9	2		2
30.0-31.9	2		2
32.0-33.9		3	3
34.0-35.9		6	6
36.0-37.9	1	3	4
38.0-39.9	2	3	5
40.0-41.9			0
42.0-43.9	1		1
TOTAL	53	16	69

The size frequencies of king salmon caught on rod and reel by sport anglers for the years 1961-1963, and the test fishery in 1965 are presented in Figure 2. Data collected thus far indicates a sport fishery is partially selective to a male and "jack" fishery.

A comparison of average length for the years 1961-1965 caught by test nets and hook and line is shown in Table 7.

TABLE 7 - Average Length Measurements of King Salmon Caught by Test Nets and Rod and Reel in the Susitna River Drainage, 1961-1965. (Number of specimens shown in parentheses.)

	Test Net Fishery		
Year	Average Overall	Average Male	Average Female
1965	30.4 inches (440)	28.8 inches (305)	34.3 inches (132)
1964	29.6 inches (111)	27.7 inches (85)	34.9 inches (23)

TABLE 7 (Cont.) - Average Length Measurements of King Salmon Caught by Test Nets and Rod and Reel in the Susitna River Drainage, 1961-1965. (Number of specimens shown in parentheses.)

	Hook and Line		
Year	Average Overall	Average Male	Average Female
1965	23.7 inches (69)	20.4 inches (53)	34.4 inches (16)
1963	23.8 inches (887)	20.7 inches (339)	36.0 inches (92)
1962	26.6 inches (226)	24.1 inches (58)	34.9 inches (12)
1961	23.7 inches*		

* Number of specimens not available

Escapement

King salmon escapement counts were determined by test fishing, and float and aerial surveys. Ground (float) counts appear to be more accurate than aerial surveys, but due to limited time, lack of personnel, difficult terrain and weather conditions, most of the spawning counts were made by air.

During 1965 much of the survey visibility was hampered by poor weather conditions. Flooding conditions during the peak of spawning made any estimate difficult. The escapement counts do not indicate the actual escapement figures for the Upper Cook Inlet streams, but serve as an index of the relative abundance at the time of survey.

A total of 4,742 king salmon was enumerated in 30 streams in 1965 compared to a count of 4,247 king salmon in 37 streams in 1964 (Table 8). In 1965 and 1964, 58.3 and 57.0 percent, respectively, of the kings enumerated from air or ground counts were from the Deshka River.

It was possible to survey most of the spawning areas of the East Fork of the Deshka River by rubber boat. During the float trip, 1,565 king salmon were counted.

An aerial survey on July 29 over the West Fork of the Deshka River revealed 640 adult spawners in approximately 10 miles of stream. It was acknowledged that a float survey over the same area during the peak of spawning would have resulted in a much higher count. From August 13 through August 18 a ground survey was made but no kings were observed. Rain and high water made observations impossible. During this peak period of spawning the river rose six feet and flood conditions existed throughout the drainage.

Another float survey attempt was made over the same area from August 25 through August 29 with four carcasses observed but no live kings sighted. Because of the previous flood, king salmon carcasses were deposited in high water flotsam and in the grass. The amount of damage to the Deshka River in terms of fish lost, salmon redds scoured or fish habitat destroyed is not known.

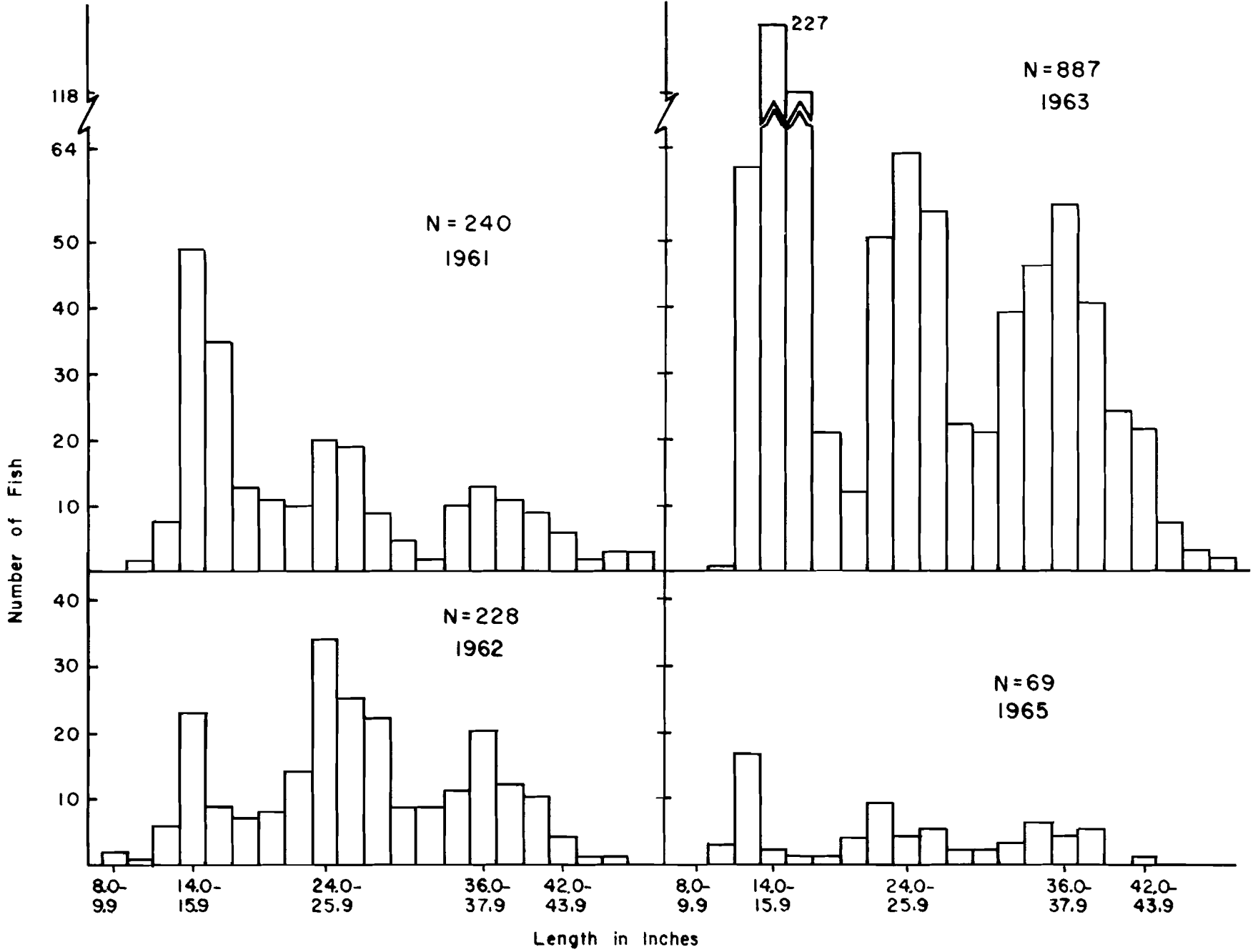

Figure 2. Length frequency distribution of rod and reel caught King Salmon, caught in the Susitna River Drainage, 1961, 1962, 1963 and 1965.

TABLE 8 - High Counts of Spawning King Salmon in Some of the Tributaries of Upper Cook Inlet, 1965.

Stream	Date	Type Survey	Number Salmon
Alexander Creek	7/30	Float	400
Byers Creek	8/6	Air	4
Camp Creek	7/30	Air	101
Campbell Creek	7/26 & 7/27	Ground	119
Chuik Creek (Deshka)	7/28	Air	16
Chunilna Creek	8/6	Air	8
Chuit River	8/24	Air	1
Deshka River (West Fork)	7/29	Air	640
Little Willow Creek	7/6	Air	3
Little Susitna River	6/25	Ground	3
Montana Creek	7/30 & 8/3	Ground	57
Moose Creek (Deshka)	8/5 & 8/8	Float	2,065
North Fork Kashwitna	7/11	Air	3
Peters Creek	7/27	Air	101
Prairie Creek	7/11	Air	30
Sheep Creek	7/7	Ground	3
Ship Creek	7/22	Ground	207
South Fork Eagle River	7/21	Ground	159
Sucker Creek	7/29	Ground	16
Sunflower Creek	7/30	Air	49
Talachulitna River	8/7	Air	69
Twin Creek	7/30	Air	19
Willow Creek	7/11	Air	35
Quig Creek	7/30	Air	53
Yenlo Creek	7/29	Air	3
Tributary to Moose Creek	7/28	Air	28
Indian Creek	6/30	Test Fishery	1
Gagnon Creek	6/25	Test Fishery	13
Moose Creek	6/30 & 7/1	Test Fishery	25
Unnamed Creek (Vic Youngstown)	7/1	Test Fishery	2
Deshka (Confluence Susitna River)	5/29 & 7/22	Test Fishery	509
		TOTAL	4,742

Ground counts appear to be more accurate than aerial surveys and it was estimated that at least 1,200 king salmon utilized the west fork. A conservative estimate of 5,000 king salmon was made for the entire Deshka River system.

Age and Sex Composition

Five- and four-year-old fish were the most prominent age class accounting for 52.7 and 32.7 percent, respectively, of the 110 scales read for the test net caught fish. Age classes, by length and by sex, are listed in Table 9.

The European formula was used in age designation; for example, a 1.3 designation refers to a salmon with one winter (annuli) in fresh water, three winters (annuli) in salt water and returning to spawn in its fifth year.

TABLE 9 - Age-Length Frequency Distribution, by Sex, of 110 King Salmon Sampled at the Test Net Site, Deshka River, 1965.

Length in inches	Age					
	Males			Females		
	1.2	1.3	1.4	1.3	1.4	Total
18.0-19.9	1					1
20.0-21.9	4					4
22.0-23.9	16					16
24.0-25.9	11					11
26.0-27.9	3	1				4
28.0-29.9	1					1
30.0-31.9		2		2		4
32.0-33.9		2		17		19
34.0-35.9		4		10		14
36.0-37.9		2		14		16
38.0-39.9		1		1	1	3
40.0-41.9		1	3	1	1	6
42.0-43.9			5		2	7
44.0-45.9						
46.0-47.9						
48.0-49.9			2		1	3
50.0-51.9			1			1
TOTAL	36	13	11	45	5	110
Percent	32.7	11.8	10.0	41.0	4.5	100

The age composition for the test net fishery is biased because the 5-1/4-inch stretch mesh gill net rarely catches salmon less than 20 inches. This would tend to eliminate any sampling of two-and three-year-old fish. Nine salmon less than 20 inches were taken in the test net, but all the scales were found to be regenerate.

Fecundity

Ovaries were taken from seven females ranging in size from 32.0 to 38.5 inches. The number of eggs per fish determined by actual count ranged from 7,311 to 10,330 with an average of 8,762. According to Yancey and Thorsteinson, (1963), the fecundity of Cook Inlet king salmon appears to be the highest recorded on the eastern shore of the Pacific Ocean. The average number of eggs per female was 8,517.

Downstream Migrants

Attempts to collect downstream migrants on the Deshka River with fyke and minnow traps employed periodically from May through August were not successful.

Numerous salmonoid fry were observed in Ship and Campbell Creek during September. Several salmon parr were caught by minnow traps and identified as silver and king salmon. On September 21, thirty king salmon parr were caught at Campbell Creek with a sample of 10 averaging 2.97 inches and 28 king salmon parr were trapped on Ship Creek with an average length of 2.8 inches.

On January 19, 1966, 30 king salmon parr averaging 2.9 inches were captured in a trap in Upper Ship Creek. Scale examinations from these fish showed they were spending their first winter in fresh water.

All king salmon parr caught in Ship Creek after August were checked for removal of the left pectoral fin, which was the fin mark for 4,800 kings released from the Fort Richardson Cooling Pond on August 6. No marked kings were captured.

Silver Salmon

Many of the freshwater streams in Upper Cook Inlet offer excellent silver salmon angling. Silver salmon enter the streams in mid-July and may continue to run into September. The east side of the Susitna River is accessible by road and is heavily fished; most of the west side streams are accessible by charter (float plane) flights and receive equal pressure during the peak of migration.

The 1965 silver run appeared to have been the smallest since 1961; spawning escapement was also down significantly. Comparative harvest data for the Upper Cook Inlet Drainage silver salmon fishery since 1961 are listed in Table 10.

TABLE 10 - Species Composition of the Sport Fish Harvest for Various Streams in the Susitna River Drainage 1961-1965.

Year	Kings	Silvers	Pinks	Chums	RB*	GR*	WF*	DV*	Total
1961	423	269	5	73	545	72	42	46	1,475
	28.6%	18.3%	.3%	5.0%	37.0%	4.8%	2.9%	3.1%	
1962	352	1,986	57	27	539	113	51	31	3,156
	11.1%	63.0%	1.8%	.8%	17.0%	3.6%	1.7%	1.0%	
1963	1,156	680	-	25	559	287	87	16	2,810
	41.2%	24.2%	-	.9%	19.9%	10.3%	3.0%	.5%	
1964	-	911	273	3	117	70	8	15	1,397
	-	65.2%	19.5%	.2%	8.4%	5.0%	.6%	1.1%	
1965	-	53	18	9	632	203	33	39	987
		5.4%	1.7%	.8%	64.3%	20.6%	3.3%	3.9%	

* Rainbow
Grayling
Whitefish
Dolly Varden

The average length obtained from 14 adult silvers was 20.4 inches. Scale determinations from previous years indicate that Susitna River silver salmon return to spawn in their fourth year of life.

Steelhead Trout

It is very doubtful that steelhead enter any of the Upper Cook Inlet streams, although they enter the streams of the Kenai Peninsula. Anglers during the past have reported catches of steelhead but the authenticity of said reports has proven negative.

Fort Richardson Cooling Pond

Beginning in 1963, king salmon fry have been reared in the cooling pond and released into Ship Creek in an effort to increase the king salmon fishery of Cook Inlet. A description of the pond is presented in Volume 4, Job No. 9-B, Dingell-Johnson Project Report, 1962-63, State of Alaska.

On March 18, 1965, 352 fingerlings averaging 3.0 inches were marked with an adipose fin clip and released. These fish were the progeny of adults spawned at Ship Creek during August 1964.

King salmon eggs were obtained from Green River, Washington in December, 1964, and hatched at the Fire Lake Hatchery. From the 95,340 salmon fry stocked in the cooling pond in April, 1965, only 8,432 kings survived. The reason for the low survival is unknown, but there are some indications that these fish were affected by a nutritional or virus-like disease. Also, the fish were not graded and much cannibalism took place. During the first week in August, 4,810 kings averaging 3.9 inches, or about 80 per pound, were marked by removal of the left pectoral fin and released; 3,622 fingerlings were also released into Ship Creek unmarked because of their small size.

A total of 228,000 king salmon eggs was received from Green River, Washington on November 23, 1965 and are now hatching at the Fire Lake Hatchery. When the fry are conditioned to automatic feeding they will be transferred to outside tanks that will have preheated water to escalate growth during the winter months. When the kings approach 200 per pound, they will be transferred to the Fort Richardson Cooling Pond where they will be reared until their release in the spring of 1966.

During 1966 there is a remote possibility of king salmon returns from the initial release in 1964. Although the release in 1964 was so small as to discourage any hope for returning salmon, all carcasses on the spawning grounds will be enumerated and checked for clipped fins.

Prepared by:

Stanley W. Kubik
Fishery Biologist

Date: April 1, 1966

Approved by:

s/ Louis S. Bandirola
D-J Coordinator

s/ Alex H. McRea, Director
Sport Fish Division